



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,877	04/11/2005	Isao Kubota	1600-0160PUS1	2263
2292 7590 07/03/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER BERNSHTEYN, MICHAEL	
			ART UNIT 1713	PAPER NUMBER
			NOTIFICATION DATE 07/03/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/530,877

Applicant(s)

KUBOTA ET AL.

Examiner

Michael Bernshteyn

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 04/11/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 2 and 3 are objected to because of the following informalities: improper Markush group format. According MPEP § 2171.05(h), one acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See *Ex parte Markush*, 1925 C.D. 126 (Comm'r Pat. 1925). Appropriate correction is required.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 1713

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-3, 5, 11 and 15-17 are rejected under 35 U.S.C. 102(a) as being anticipated by Kobayashi et al. (U. S. Patent 5,965,640).

With regard to the limitations of claims 1 and 17, Kobayashi discloses a crosslinkable acrylic rubber composition, which comprises (1) a halogen-containing acrylic rubber, (2) a triazine thiol compound, (3) a dithiocarbamine acid derivative or a thiuram sulfide compound, or both, (4) a hydrotalcite compound or an organotin compound, or both, (5) an aromatic carboxylic acid compound or an acid anhydride thereof, or both, (6) a white filler with a pH of 2-10, and (7) a silane coupling agent (abstract).

With regard to the limitations of claim 2, Kobayashi discloses the following compounds as preferred examples of the alkyl acrylate used in the halogen containing acryl rubber: methyl acrylate, ethyl acrylate, n-propyl acrylate, isopropyl acrylate, n-butyl acrylate, isobutyl acrylate, n-hexyl acrylate, 2-ethylhexyl acrylate, and cyclohexyl

Art Unit: 1713

acrylate. Of these, ethyl acrylate and n-butyl acrylate are especially preferred. These alkyl acrylates may be used either individually or in combinations of two or more. (col. 3, lines 29-37).

Given as examples of the preferred alkoxyalkyl acrylate are methoxy methyl acrylate, ethoxy methyl acrylate, 2-methoxy ethyl acrylate, 2-ethoxyethyl acrylate, 2-propoxyethyl acrylate, 2-butoxyethyl acrylate, 3-methoxy propyl acrylate, 4-methoxy butyl acrylate. Of these, 2-methoxy ethyl acrylate and 2-ethoxyethyl acrylate are especially desirable. These alkoxyalkyl acrylate may be used either individually or in combinations of two or more (col. 3, lines 38-46).

With regard to the limitations of claim 3, Kobayashi discloses unsaturated carboxylic acid or the anhydrides thereof, such as (meth)acrylic acid, ethacrylic acid, crotonic acid, cinnamic acid, maleic acid, maleic anhydride, fumaric acid, itaconic acid, itaconic anhydride, citraconic acid, etc. (col. 4, lines 28-35). Additionally as component (5), the following aromatic carboxylic acid compound and the acid anhydride can be used: aromatic monocarboxylic acids, such as benzoic acid and salicylic acid; aromatic dicarboxylic acids (and acid anhydrides), such as o-phthalic acid, phthalic anhydride, isophthalic acid, and terephthalic acid; aromatic tricarboxylic acids (and acid anhydrides), etc. (col. 7, lines 44-57).

With regard to the limitations of claims 5 and 11, Kobayashi discloses that the white filler must have a pH in the range of 2-10, preferably 3-8, which is within the claimed range. Given as examples of white fillers are **white carbon (silica)**, Celite, talc, clay, **calcined clay**, magnesium carbonate, magnesium methasilicate, calcium

Art Unit: 1713

carbonate, aluminum hydroxide, magnesium hydroxide, and titanium dioxide. Of these, white carbon is desirable for obtaining a high crosslinking density. These white fillers may be used after surface treatment using a silane coupling agent, alcohol, or amine. These white fillers may be used either individually or in combinations of two or more (col. 8, lines 5-19).

With regard to the limitations of claim 15, Kobayashi discloses that particularly, as crosslinking agents for a halogen-containing acrylic rubber, a composition comprising a fatty acid metal soap and sulfur or a sulfur donor, a composition comprising a **triazine derivative** and a **dithiocarbamine acid derivative**, and the like are known (col. 1, lines 24-28). These compounds are exemplified by the Applicants as crosslinking accelerator having a base dissociation constant in the range of 10^{-12} to 10^6 as measured in water at a temperature of 25°C (the specification, pages 20-22).

With regard to the limitations of claim 16, Kobayashi discloses a silane coupling agent, which amount is usually 0.1-10 parts per weight, preferable 0.1-8 parts by weight, for 100 parts by weight of the halogen-containing acrylic rubber, which is within the claimed range (col. 8, lines 27-57).

3. Claims 4 and 6-10 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kobayashi et al. (U. S. Patent 5,965,640).

The disclosure of Kobayashi's reference resided in § 2 is incorporated herein by reference.

With regard to the limitations of claims 4, 8 and 9, Kobayashi does not disclose the claimed properties of the synthetic silica and a process of the preparation of calcined silica.

However, in view of identical acrylic rubber composition between Kobayashi and instant claims, it is the examiner's position that Kobayashi's filler – white silica inherently possesses these properties. Since the USPTO does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. **In re Fitzgerald** 619 F 2d 67, 70, 205 USPQ 594, 596 (CCPA 1980).

Even assuming that the claims are not anticipated by the reference, it would have been obvious to one of ordinary skill in the art to make the polymer having the claimed properties using the known process because it appears that the reference generically embrace the claimed subject matter and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed subject matter and the subject matter of the prior art examples give rise to unexpected products.

With regard to the limitations of claims 6, 7 and 10, Kobayashi does not disclose a process of the preparation of calcined silica.

In view of substantially identical white silica being used by both Kobayashi and the applicant, it is the examiner position to believe that the product, i.e. white silica of Kobayashi is substantially the same as the calcined silica recited in claims 6, 7 and 10, even though obtained by a different process, consult ***In re Thorpe***, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Since the USPTO does not have proper equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

4. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. in view of Takashima et al. (U. S. Patent 6,815,506).

With regard to the limitations of claims 12 and 13, Kobayashi does not disclose that the acrylic rubber composition further comprises aluminum silicate.

Takashima discloses that the examples of inorganic fillers for a rubber composition include **silica**, ground whiting, chalk, light calcium carbonate, extra-fine activated calcium carbonate, special calcium carbonate; basic magnesium carbonate, kaolin, calcined clay, pyrophyllite clay, silane-processed clay, synthetic calcium silicate, synthetic magnesium silicate, synthetic **aluminum silicate**, magnesium carbonate, aluminum hydroxide, magnesium hydroxide, magnesium oxide, etc. (col. 8, lines 48-67).

Both references are analogous art because they are from the same field of endeavor concerning new acrylic rubber compositions.

Therefore, all of the above inorganic fillers are functional equivalents and can be substituted by each other. Thus, Takashima recognizes the equivalency of silica used

Art Unit: 1713

by Kobayashi and aluminum silicate as inorganic filler. In the instant case the substitution of equivalents inorganic fillers requires no express motivation, as long as the prior art recognize equivalency, *In re Fount*, 213 USPQ 532 (CCPA 1982); *In re Siebentritt*, 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950), and a person skilled in the art would have found obvious to substitute partly silica of Kobayashi for aluminum silicate of Takashima based on their recognized equivalency and with the reasonable expectation of success.

With regard to the limitations of claims 12 and 13, the combined teaching of Kobayashi and Takashima does not disclose that the weight ratio of Al_2O_3 and the ratio of the content of SiO_2 to the content Al_2O_3 .

It is noted that the amount of the weight ratio of the components A and B is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per *In re Boesch and Slaney* 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382: "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. in view of Takashima et al. (JP 04-126738).

With regard to the limitations of claim 14, Kobayashi does not disclose that the crosslinking agent is a polyamine compound.

Art Unit: 1713

Takashima discloses that the polyfunctional crosslinking agents are preferably **polyamines**, diamines, dithiols, polyisocyanates, maleimides, dicarboxylic acids, etc. (page 7, the last paragraph).

Both references are analogous art because they are from the same field of endeavor concerning new acrylic rubber compositions.

Therefore, all of the above crosslinking agents are functional equivalents and can be substituted by each other. Thus, Takashima recognizes the equivalency of dicarboxylic acids used by Kobayashi and polyamines as a crosslinking agent. In the instant case the substitution of equivalents crosslinking agents requires no express motivation, as long as the prior art recognize equivalency, ***In re Fount***, 213 USPQ 532 (CCPA 1982); ***In re Siebentritt***, 152 USPQ 618 (CCPA 1967); ***Graver Tank & Mfg. Co. Inc. V. Linde Air Products Co.*** 85 USPQ 328 (USSC 1950), and a person skilled in the art would have found obvious to substitute dicarboxylic acids of Kobayashi for polyamines of Takashima based on their recognized equivalency and with the reasonable expectation of success.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.


Art Unit: 1713

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Bernshteyn
Patent Examiner
Art Unit 1713

MB
06/22/2007


DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700